

REMARKS

The Office Action mailed February 7, 2003, has been reviewed and the comments of the Patent and Trademark Office have been considered. Claims 1 and 11 have been amended. No new matter has been added. Applicants submit that the amendments to claims 1 and 11 should be entered at least because these amendments reduce the number of issues for appeal. Claims 1-12 are pending for consideration.

Rejections under 35 U.S.C. §§ 102 and 103

Claims 1, 7 and 8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,939,028 to Bennett et al. (hereafter "Bennett"). Claims 2-6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,776,417 to Frost et al. (hereafter "Frost '417"). Claim 9 stands rejected under 35 U.S.C. § 103 as being unpatentable over Bennett in view of Frost (JP 409103645) (hereafter "Frost '645"). Claims 10 and 11 stand rejected under 35 U.S.C. § 103 as being unpatentable over Bennett in view of U.S. Patent No. 6,029,441 to Mizuno et al. (hereafter "Mizuno"). Claim 12 stands rejected under 35 U.S.C. § 103 as being unpatentable over Frost in view of Mizuno. Applicants respectfully traverse these rejections for at least the following reasons.

Claims 1 and 11

Both independent claims 1 and 11 require that the H₂O trap be disposed upstream of and close to the CO oxidation catalyst. Applicants submit that Bennett fails to disclose this feature of claims 1 and 11. Bennett discloses a water trap for the purpose of preventing water from contacting a CO oxidation catalyst (col. 8, lines 18-20). With respect to the relative position of the water trap and the CO oxidation catalyst, Bennett discloses two configurations: (1) where the water trap is upstream of the CO oxidation catalyst (col. 8, lines 23-25), and (2) where the water trap is admixed with the CO oxidation catalyst in a layered arrangement (col. 8, lines 25-28). In contrast to claims 1 and 11, Bennett discloses no arrangements where the water trap is disposed both upstream of and close to the CO oxidation catalyst.

The Office Action states that Bennett discloses that the water trap and CO oxidation catalyst are disposed as layers to each other, and that this disclosure reads on the limitations of claim 1. Applicants respectfully disagree. Claim 1 and claim 11 require that the H₂O trap be disposed upstream of the CO oxidation catalyst. In the embodiment of Bennett where the water trap is admixed with the CO oxidation catalyst in a layered arrangement, the water trap cannot be reasonably interpreted as being upstream of the CO oxidation catalyst. Applicants submit that one skilled in the art would interpret the layered arrangement of Bennett as providing that the water trap and CO oxidation catalyst are at essentially the same position.

This interpretation of “upstream” in claims 1 and 11 to exclude a water trap and CO oxidation catalyst arranged as layers to each other is consistent with the specification of the present application. Throughout the specification, the term “dispose” is used in the context of a H₂O trap and CO oxidation catalyst separately arranged with respect to each other. The separate arrangement is described only in the first embodiment, in which the term “dispose” is used (see page 5, lines 2-6 in the specification). By contrast when a layered or admixed arrangement is independently described in the second embodiment, the phrase “coated on the same honeycomb...layer-wise or mixing the both” is employed (see page 10, lines 20-23 in the specification). Thus, when viewed in light of the present specification, claims 1 and 11 exclude an arrangement where the water trap and CO oxidation catalyst are merely arranged as layers to each other.

In any event, both claims 1 and 11 have been amended to recite “the H₂O trap being supported separately from the CO oxidation catalyst.” Even if Bennett could be broadly interpreted as disclosing the water trap upstream of the CO oxidation catalyst in the layered arrangement embodiment, clearly this arrangement cannot be interpreted as disclosing that the water trap and the CO oxidation catalyst are supported separately. Thus, for at least this reason, claims 1 and 11 are patentable over Bennett.

Frost '645 was cited for allegedly disclosing a HC trap disposed upstream of a water trap but fails to cure the deficiencies of Bennett at least because Frost '645 does not suggest

that the water trap should be disposed upstream of the CO oxidation catalyst in the Bennett device. In fact Frost '645 specifically discloses in the SOLUTION that the water trap is arranged on the downstream side of the catalyst.

Claims 2 and 12

Claim 2 recites an arrangement where an HC trap is disposed upstream of an H₂O trap. In contrast to claim 2, Frost '417 discloses that the HC trap is disposed downstream of the H₂O trap so that the H₂O trap may pre-dry the HC trap (col. 2, lines 46-55). Moreover, because the purpose of the Frost '417 arrangement is to dry the HC trap, it would not have been obvious to modify this arrangement to dispose the HC trap upstream of the H₂O trap and thus potentially expose the HC trap to moisture. For at least this reason, claim 2 is patentable over Frost '417.

In claim 12 the HC trap, which is disposed upstream of a secondary air supply, must also be disposed upstream of the H₂O trap. Thus, claim 12 is patentable over Frost '417 for at least the same reasons as claim 2. Furthermore, as discussed above with respect to claim 2, it would not have been obvious to modify the Frost '417 reference to dispose the HC trap upstream of the H₂O trap, because the purpose of the relative arrangement of the H₂O trap of Frost '417 to be upstream of the HC trap is to remove H₂O prior to the HC trap.

Mizuno was cited for allegedly disclosing an HC trap upstream of a secondary air supply unit, and does not cure the deficiencies of Frost '417 or Bennett discussed above.

For at least the reasons given above, applicants submit that all of the independent claims, 1, 2, 11 and 12, are patentable over the art cited in the rejection of the claims. The dependent claims are patentable for at least the same reasons as their respective independent claims, as well as for further patentable features recited therein. Accordingly applicants respectfully request that the rejection of the claims under 35 U.S.C. §§ 102 and 103 be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, applicants respectfully submit that all of the pending claims are now in condition for allowance. An early notice to this effect is earnestly solicited. If there are any questions regarding the application, the Examiner is invited to contact the undersigned at the number below.

Respectfully submitted,

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Versions with Markings to Show Changes Made

In the Claims:

1. (Amended) An exhaust emission control device of an internal combustion engine, comprising[;]
 - a CO oxidation catalyst; and
 - a H₂O trap disposed upstream of and close to the CO oxidation catalyst, the H₂O trap being supported separately from the CO oxidation catalyst.

11. (Amended) An exhaust emission control device of an internal combustion engine, comprising[;]
 - a low temperature light-off CO oxidation catalyst;
 - a H₂O trap disposed upstream of and close to the CO oxidation catalyst, the H₂O trap being supported separately from the CO oxidation catalyst;
 - a secondary air supply unit disposed upstream of the H₂O trap; and
 - a HC trap disposed upstream of the secondary air supply.